COEUR D'ALENE ELKS LODGE 1254 (PWSNO 1280136)
SOURCE WATER ASSESSMENT REPORT

July 25, 2001

State of Idaho
Department of Environmental Quality

SOURCE WATER ASSESSMENT FOR COEUR D'ALENE ELKS LODGE 1254

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Idaho Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your particular drinking water source is based on a land use inventory within the well recharge zone, your water quality history, construction characteristics associated with your well or wells, and site specific sensitivity factors associated with the aquifer your water is drawn from.

This report, *Source Water Assessment for Coeur d'Alene Elks Lodge 1254* describes the public drinking water source, potential contaminant sites located within in the well recharge boundaries, and the susceptibility (risk) that may be associated with any associated potential contaminants. DEQ used a refined computer model approved by the EPA to map the boundaries of the well recharge area into time of travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the Rathdrum Prairie Aquifer. The computer model used data assimilated by DEQ from a variety of sources including well logs in the vicinity of the Coeur d'Alene Elks Lodge Well #1.

This assessment, taken into account with local knowledge and concerns, should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should <u>not</u> be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Potential Contaminant Inventory. The Coeur d'Alene Elks Lodge 1254 public water system, located on Prairie Avenue in the Hayden Lake/Dalton Gardens area of Kootenai County, Idaho, has three connections serving a private residence and a fraternal lodge with a restaurant and bar. No well log is available, but the 8-inch cased well is reported to be 315 feet deep. The water is not treated before distribution.

Potential contaminant sources documented inside the well recharge zone include portable outhouse storage and septage pump out trucks in the parking lot adjacent to the well; an equipment rental business and a masonry suppy in the 3 to 6 year time of travel zone and an automotive dealership in the 6 to 10 year time of travel zone. Two heavily traveled roads, Highway 95 and Government Way, cross the delineation boundaries within a mile of the well.

The map on page 5 of this report shows the well location, the recharge zone boundaries and approximate locations potential contaminant sites relative to the well. Table 1 summarizes information about the sites inventoried and contaminants that may be associated with them.

Table 1. Coeur d'Alene Elks Lodge 1254 Potential Contaminant Inventory

Map ID	Source Description	Potential Contaminants	Source of Information
1	Portable outhouse storage/maintenance	IOC, Microbial SOC, VOC	PWS File
2	Masonry Supply	IOC, SOC, VOC	Business Mailing List Database
3	Equipment Rental	IOC, SOC, VOC	Business Mailing List Database
4	Used Car Dealership	IOC, SOC, VOC	Business Mailing List Database

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
USGS= United States Geological Survey, PWS = Public Water System

Water Quality History. Coeur d'Alene Elks Lodge 1254 is required to monitor quarterly for bacterial contamination. All test results have been negative for Total Coliform bacteria. Annual nitrate samples have had concentrations ranging between 1.5 mg/l and 2.1 mg/l. The Maximum Contaminant Level (MCL) for nitrate is 10 mg/l.

Well Construction. The Coeur d'Alene Elks Lodge 1254 well was drilled before 1977 to a reported depth of 315 feet. No well log is on file in the public water system records, so several factors used to analyze the well's susceptibility to contamination are unknown.

Well Site Characteristics. Soils in the well recharge zone are generally well drained. Well drained soils provide little protection against migration of contaminants toward the well. The soil structure above the water table in the well is unknown because no well log is on file.

Susceptibility to Contamination. A susceptibility analysis DEQ conducted on the Coeur d'Alene Elks Lodge 1254 well, incorporating information from the public water system file and the potential contaminant inventory, ranked the well moderately susceptible to all classes of regulated contaminants, mostly because of naturally occurring geological factors associated with the Rathdrum Prairie Aquifer. The susceptibility analysis worksheet for your well on page 6 this report shows how your well was scored. Formulas used to compute the final susceptibility scores are at the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For Coeur d'Alene Elks Lodge 1254 source water protection activities should focus first on bringing the system into full compliance with Idaho Rules for Public Drinking Water Systems.

The 50-foot radius around the well needs to be maintained free from the use or storage of herbicides, pesticides, fertilizers, solvents and petroleum products. The portable outhouse business operating from the property needs to keep its storage and cleaning operations and pumper trucks at least 100 feet from the well. It is important to install a double check valve on the irrigation line to prevent the back flow of surface contaminants into the well during a period of low pressure.

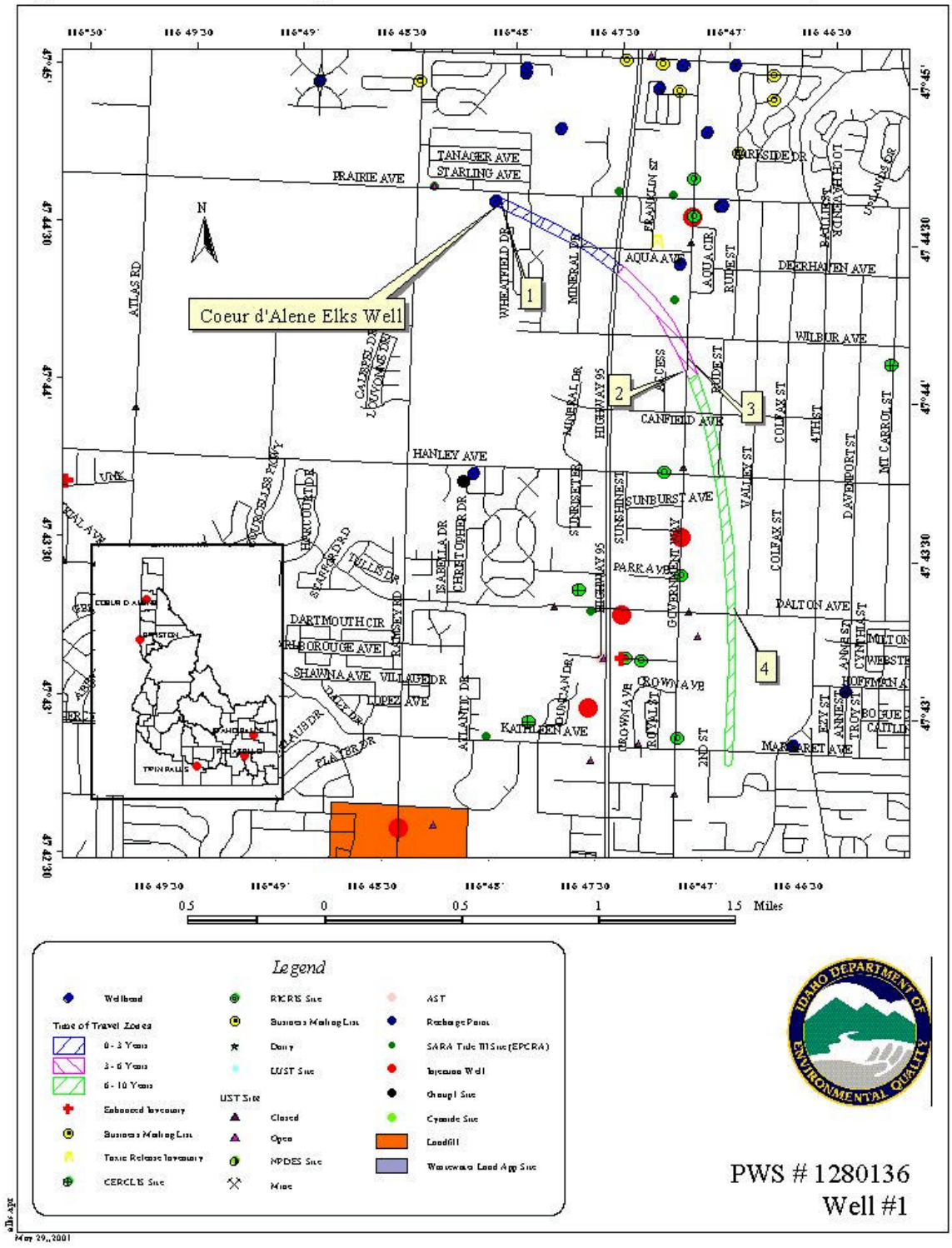
Because the water system doesn't have direct jurisdiction over the entire recharge zone for its well, it will be important to form partnerships with neighbors, and public agencies to regulate land uses that can degrade ground water quality. Because 186 public water systems in Idaho draw water from the Rathdrum Prairie Aquifer, they should consider forming a regional group to represent their interests before state, county and municipal governing bodies when regulatory tools like zoning overlays, or enactment of building codes are the most appropriate ground water protection measures. The goal of source water protection is to maintain current water quality for the future despite the changes we can expect with population growth in North Idaho.

For assistance in developing source water protection strategies please contact Tony Davis at the Coeur d'Alene Regional DEQ office at 208 769-1422.

DEQ Website:

http://www.deq.state.id.us

Figure 1. Coeur d'Alene Elks Lodge 1254 Delineation and Potential Contaminant Inventory.



Attachment A

Coeur d'Alene Elks Lodge
#1254
Susceptibility Analysis
Worksheet

Ground Water Susceptibility Analysis

Public Water System Name : **Coeur d'Alene Elks Lodge 1254** Source: **WELL #1**

Public Water System Number : **1280136** 5/30/01 11:43:45 AM

1. System Construction		SCORE			
Drill Date	Prior to 1977				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES	0			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		**4**			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		**6**			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - ZONE 1A (Sanitary Setback)		Score	Score	Score	Score
Land Use Zone 1A	URBAN/COMMERCIAL	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		**2**	**2**	**2**	**2**
Potential Contaminant / Land Use - ZONE 1B (3 YR. TOT)					
Contaminant sources present (Number of Sources)	YES	1	1	1	1
(Score = # Sources X 2) 8 Points Maximum		2	2	2	2
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
4 Points Maximum		1	1	1	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		**5**	**5**	**5**	**4**
Potential Contaminant / Land Use - ZONE II (6 YR. TOT)					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		**3**	**3**	**3**	**0**
Potential Contaminant / Land Use - ZONE III 10 YR. TOT)					
Contaminant Source Present	YES	0	1	1	
Sources of Class II or III leacheable contaminants or Microbials	YES	0	1	1	
Is there irrigated agricultural lands that occupy > 50% of Zone	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		**0**	**2**	**2**	**0**
Cumulative Potential Contaminant / Land Use Score		**10**	**12**	**12**	**6**
4. Final Susceptibility Source Score		**12**	**12**	**12**	**12**
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

0 - 5 Low Susceptibility; 6 - 12 Moderate Susceptibility; > 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.